



**ELECTRONICS, INC.**  
 44 FARRAND STREET  
 BLOOMFIELD, NJ 07003  
 (973) 748-5089

## NTE1870 Integrated Circuit Module – Color TV Switching Regulator

**Absolute Maximum Ratings:** ( $T_A = +25^\circ\text{C}$  unless otherwise specified)

Input AC Voltage, $V_{ACmax}$ .....	280V
Output Power, $P_{Omax}$	
AC: 90V to 280V .....	80W
AC: 150V to 280V .....	100W
Substrate Temperature, $T_{Cmax}$ .....	+105°C
Junction Temperature, $T_J$ .....	+105°C
Ambient Operating Temperature Range, $T_{opr}$ .....	-10° to +60°C
Storage Temperature Range, $T_{stg}$ .....	-30° to +105°C
Thermal Resistance, Junction-to-Case, $R_{thJC}$ .....	1.8°C/W

**Electrical Characteristics:** ( $T_A = +25^\circ\text{C}$  unless otherwise specified)

Parameter	Test Conditions	Min	Typ	Max	Unit
Output Voltage Hi +B	$V_{AC} = 220\text{V}, I_{O1} = 500\text{mA}, I_{O2} = 500\text{mA}$	114.0	115.0	116.0	V
		Low +B	–	15.0	–
Line Regulation	$V_{AC} = 90\text{V to } 280\text{V}, I_{O1} = 500\text{mA}, I_{O2} = 500\text{mA}$	–	–	1	V
Load Regulation	$V_{AC} = 220\text{V}, I_{O1} = 300\text{mA to } 700\text{mA}, I_{O2} = 500\text{mA}$	–	1.5	2.0	V
Ripple Voltage	$V_{AC} = 220\text{V}, I_{O1} = 500\text{mA}, I_{O2} = 500\text{mA}$	–	0.3	0.6	$V_{P-P}$
Temperature Stability	$V_{AC} = 220\text{V}, I_{O1} = 500\text{mA}, I_{O2} = 500\text{mA}$	–	0.01	–	%/°C
Operating Frequency	$V_{AC} = 220\text{V}, I_{O1} = 500\text{mA}, I_{O2} = 500\text{mA}$	–	34	–	kHz
Operating Efficiency	$V_{AC} = 220\text{V}, I_{O1} = 500\text{mA}, I_{O2} = 500\text{mA}$	–	80	–	%
Cross Road Regulation	$V_{AC} = 220\text{V}, I_{O1} = 500\text{mA}, I_{O2} = 0 \text{ to } 1\text{A}$	–	0.2	–	V
Dielectric Voltage	Prim – Second	4	–	–	kV

Note 1. Hi +B:  $V_{O1}, I_{O1}$ ; Low +B:  $V_{O2}, I_{O2}$

**Pin Connection Diagram**  
(Front View)

<b>15</b>	TR5 Collector (Internal)
<b>14</b>	TR5 Collector (Internal)
<b>13</b>	No Pin
<b>12</b>	No Pin
<b>11</b>	TR5 Emitter (Internal)
<b>10</b>	TR5 Base (Internal)
<b>9</b>	Constant Current base Drive
<b>8</b>	Voltage Compensation
<b>7</b>	Constant Current Base Driver Control
<b>6</b>	Constant Current Base Driver Control
<b>5</b>	Current Feedback for Overcurrent Protection
<b>4</b>	Power Supply for Control Voltage Set Up
<b>3</b>	Voltage to Set Up an Output Voltage
<b>2</b>	Soft Start/Output Voltage Setting
<b>1</b>	Control Circuit GND

